Paris in aid of the new Institute of Chemistry, and that M. David Weill has made a third donation of 30,000 francs to the University.

BUILDINGS costing nearly 200,000*l.* are, says *Science*, either being constructed or will be started at the University of Wisconsin before the next academic year opens. Nine new structures will be completed within the next twelve months on various parts of the University grounds. The new buildings and their cost will be as follows:—Biology hall, 40,000*l.*; wing to library, 33,000*l.*; home economics building, 23,000*l.*; model high school, 30,000*l.*; women's dormitory, 30,000*l.*; agricultural chemistry, 18,000*l.*; chemistry building wing, 15,300*l.*; horticultural building, 11,400*l.*; gymnasium annexe, 3000*l.*

A COURSE of ten lectures on illuminating engineering will be given on Tuesday evenings at the Northampton Polytechnic Institute, St. John Street, London, E.C., commencing January 16. The lectures are intended for a technical audience, and each lecture will be given by a specialist in the particular subject. The subjects of the lectures are:—"The Nature of Light and of Radiation"; "Photometry and the Measurement of Light"; "The Production of Electric Light and its Distribution"; "The Chemistry of Gas Manufacture and Lighting"; "The Use of Shades and Reflectors"; "Physiological Factors in Illumination"; "The Practical Use of Arc Lamps"; "The Practical Use of Metallic Filament Glow Lamps"; "The Practical Use of Gas Lamps."

SOCIETIES AND ACADEMIES.

LONDON.

Royal Microscopical Society, December 20, 1911.—Mr. H. G. Plimmer, F.R.S., president, in the chair.—F. Shillington **Scales**: The photomicrography of the electrical reactions of the heart. The lecturer described the principle and construction of the Einthoven string galvanometer, with especial reference to the optical arrangements and the methods of photographing the movements of the wire, resulting from the differences in potential set up by the heart-beat. Photomicrographs of the movements of the hearts of various animals under the influence of drugs were shown.—Rev. Hilderic **Friend**: British Tubificidæ. The author first gave a brief historical sketch, alluding to the work of Lankester, Beddard, and Benham, and the various Continental and other authorities who have in past years written on the family. After showing the difficulties attending definition, and the value of the setæ for the purposes of classification, the author proceeded to arrange the British species in two classes:—(1) those genera which are destitute of capilliform setæ; and (2) those which possess them. These two groups are again subdivided, and no fewer than thirty species, besides some subspecies and varieties, are placed on record, of which ten are described for the first time, and sixteen have been added by the author during the year. Specially interesting is the discovery of a new genus, named Rhyacodrilus, containing two species, of which one (*R. bichaetus*, Friend) is new to science. These two species are as yet known only in Derbyshire. Hyodrilus is now definitely recorded as British, with no fewer than five species.

Linnean Society, December 21, 1911.—Dr. D. H. Scott, F.R.S., president, in the chair.—Rev. Hilderic **Friend**: Some annelids of the Thames Valley.

DUBLIN.

Royal Irish Academy, December 11, 1911.—Rev. Dr. Mahaffy, president, in the chair.—W. F. de V. **Kane**: Clare Island Survey Reports.—Butterflies and moths. The lepidopterous fauna of Clare Island is relatively poor, and shows a marked preponderance of northern species. The island affords a second Irish habitat for *Dasydia obfuscaria*, a remarkably melanic variety. The coast sandhills of Achill and of isolated points on the adjoining mainland are noteworthy for the occurrence of *Nyssia zonaria*, and the discontinuous range of this species, with its wingless female and sluggish herb-eating larva, presents an interesting and difficult problem to the student.—F. Balfour **Browne**: Water-beetles. Ninety species of water-beetles are now known to occur in the Clare Island district. Amongst these are some uncommon species, notably *Deronectes griseo-striatus* and *Agabus congener*; the latter insect had not been previously found in Ireland. The local *Octhebius legolissii* occurred on Clare Island. In addition to the full lists of species, a careful analysis is given of the West Mayo water-beetle fauna. The author recognises the occurrence of a distinct west-ranging Irish group of species—of both northern and southern European origin—a fact which has also been noticed in other sections of the fauna of the west of Ireland.—Miss Jane **Stephens**: Freshwater sponges. Five species of fresh-water sponges were found, namely, *Spongilla fragilis*, *S. lacustris*, *Ephydatia mülleri*, *E. fluviatilis*, and *Heteromeyenia ryderi*. The first-named is new to Ireland. Of the remaining species, *H. ryderi*, a sponge common to North America and the west of Ireland, is very widely distributed throughout the district examined. Different forms of this species are described for the first time from Ireland. The differences between the sponges growing in lakes lying on limestone and those in lakes on non-calcareous rocks are noted.

BOOKS RECEIVED.

Die Chemie der Cellulose unter besonderer Berücksichtigung der Textil- und Zellstoffindustrien. By Prof. C. G. Schwalbe. Zweite Hälfte (Schluss des Werkes). Pp. 273–666+xii. (Berlin: Gebrüder Borntraeger.) 14.80 marks.

Handbuch der bautechnischen Gesteinsprüfung. By Prof. J. Hirschwald. Erster Band. Pp. xi+387. (Berlin: Gebrüder Borntraeger.)

Annuaire Astronomique et Météorologique pour 1912. By C. Flammarion. Pp. 360. (Paris: E. Flammarion.) 1.50 francs.

Mineralogy. By Dr. F. H. Hatch. Fourth edition. Pp. ix+253. (London: Whittaker and Co.) 4*s.* net.

Increasing Human Efficiency in Business. By Prof. W. D. Scott. Pp. v+339. (London: Macmillan and Co., Ltd.) 5*s.* 6*d.* net.

The Rational Arithmetic for Rural Schools. By G. Ricks. Scholar's Book. Third Year's Course. Pp. 48. Fourth Year's Course. Pp. 48. (London: Macmillan and Co., Ltd.) 3*d.* each.

Black's Literary Readers. By J. Finnemore. Book vi. Pp. 268. (London: A. and C. Black.) 1*s.* 9*d.*

Twenty-seventh Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1905–6. Pp. 672. (Washington: Government Printing Office.)

Supplement to the Fourth Report of the Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. By Dr. A. Balfour, Captain R. G. Archibald, and others. Pp. 448. (London: Baillière, Tindall and Cox.) 15*s.* net.

Handbuch der vergleichenden Physiologie. Edited by H. Winterstein. 18 Lieferung, Band ii., Erste Hälfte. Pp. 1145–1563+x. 19 Lieferung, Band iii., Erste Hälfte. Pp. 160. (Jena: G. Fischer.) 5 marks each.

Complete Yield Tables for British Woodlands and the Finance of British Forestry. By P. T. Maw. Pp. xii+108. (London: Crosby Lockwood and Son.) 7*s.* 6*d.* net.

Shackleton in the Antarctic: being the Story of the British Antarctic Expedition, 1907–9. By Sir E. Shackleton, C.V.O. Pp. 255. (London: W. Heinemann.) 1*s.* 6*d.*

Flashes from the Orient, or a Thousand and One Mornings with Poesy. By J. Hazelhurst. Book four—Winter. Pp. xi+284. (London: Hazell, Watson and Viney, Ltd.) 1*s.* 6*d.* net.

An Intermediate Course of Practical Physics. By Rajanikanta De. Pp. xii+284. (Calcutta: International Publishing Company.)

Willing's Press Guide, 1912. Pp. xiv+489. (London: J. Willing, jun., Ltd.) 1*s.*

Biological Aspects of Human Problems. By Dr. C. A. Herter. Pp. xvi+344. (London: Macmillan and Co., Ltd.) 6*s.* 6*d.* net.

A Geography of the World. By B. C. Wallis. Pp. xvi+372. (London: Macmillan and Co., Ltd.) 3*s.* 6*d.*

The Chemistry of Bread-making. By J. Grant. Pp. vi+224. (London: E. Arnold.) 5*s.* net.

Memories of a School Inspector: Thirty-five Years in

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Lancashire and Suffolk. By A. J. Swinburne. Pp. 274. (Saxmundham: The Author; and London: McDougall's Educational Company, Ltd.) 2*s*. 6*d*. net.

Microbiology for Agricultural and Domestic Science Students. Edited by Prof. C. E. Marshall. Pp. xxi+724. (London: J. and A. Churchill.) 10*s*. 6*d*. net.

The Metallurgy of Steel. By F. W. Harbord and J. W Hall. 2 vols. Fourth edition. Vol. i. Pp. xvi+522+xxix. Vol. ii. Pp. xviii+523–933+xxix. (London: C. Griffin and Co., Ltd.) 36*s*. net.

From Constantinople to the Home of Omar Khayyam. Travels in Transcaucasia and Northern Persia for Historic and Literary Research. By Prof. A. V. W. Jackson. Pp. xxxiii+317. (London: Macmillan and Co., Ltd.) 15*s*. net.

Die Reizbewegungen der Pflanzen. By Dr. E. G. Pringsheim. Pp. viii+326. (Berlin: J. Springer.) 12 marks.

A Text-book of Botany for Colleges and Universities. By Members of the Botanical Staff of the University of Chicago, Drs. J. M. Coulter, C. R. Barnes, and H. C. Cowles. Vol. ii. Ecology. Pp. x+485–964+pp. a—q. (New York, &c.: American Book Co.)

DIARY OF SOCIETIES.

THURSDAY, January 11.

Royal Society, at 4.30.—On the Propagation of Waves through a Stratified Medium, with Special Reference to the Question of Reflection: Lord Rayleigh, O.M., F.R.S.—On the Variation of the Specific Heat of Water, with Experiments by a New Method: Prof. H. L. Callendar, F.R.S.—The Mechanism of the Semipermeable Membrane and a New Method of Determining Osmotic Pressure: Prof. F. T. Trouton, F.R.S.—Mobility of the Positive and Negative Ions in Gases at High Pressures: A. L. Kovarik.—A New Method of Determining the Radiation Constant: G. A. Shakespear.—The Mechanics of the Water Molecule: Dr. R. A. Houston.

Mathematical Society, at 5.30.—Successions of Integrals and Fourier Series: W. H. Young.—A New Condition for the Truth of the Converse of Abel's Theorem: G. H. Hardy and J. E. Littlewood.—On Mersenne's Numbers: A. Cunningham.

Institution of Electrical Engineers, at 8.—Some General Principles Involved in the Electric Driving of Rolling Mills: C. A. Ablett.

Concrete Institute, at 8.—Discussion on Two Reports of the Reinforced Concrete Practice Standing Committee: (*a*) The Standardisation of Drawings of Reinforced Concrete Work; (*b*) Consistency of Concrete.

FRIDAY, January 12.

Royal Astronomical Society, at 5.—Note on Certain Co-efficients appearing in the Algebraic Development of the Perturbing Function: R. T. A. Innes.—Sur la longitude de l'Observatoire de Lille, déterminée par télégraphie sans fil: R. Jonckheere.—The Constitution of the Ring Nebula in Lyra (N.G.G. 6720): J. W. Nicholson.—Observations of Occultations of Stars by the Moon made in the year 1911: Royal Observatory, Greenwich.—An Example of the Use of Spherical Harmonic Analysis: F. G. Brown and H. H. Turner.—A New Form of Observatory Dome: C. P. Butler.

Malacological Society, at 8.—Note on the Genus Panope Ménard: W. H. Dall.—Nomenclature of the Veneridæ—A Reply to Dr. W. H. Dall: A. J. Jukes-Browne, F.R.S.—The Occurrence of *Helicella heripensis* in Great Britain; Notes on Some British Non-marine Mollusca: A. W. Stelfox.—Characters of Two Undescribed Land Shells from Colombia; Explanation of the Figures Occurring in Westerlund's "Sibirien's Land och Söttvatten Mollusker," 1876; On Two Pre-occupied Specific Names in Gasteropoda: G. K. Gude.

MONDAY, January 15.

Royal Geographical Society, at 8.30.

TUESDAY, January 16.

Royal Institution, at 3.—The Study of Genetics: Prof. W. Bateson, F.R.S.

Royal Statistical Society, at 5.—The Recruiting of the Employing Classes from the Ranks of the Operatives in the Cotton Industry: Prof. S. J. Chapman and F. J. Marquis.

Illuminating Engineering Society, at 8.—Colour Discrimination by Artificial Light: T. E. Ritchie.

Institution of Civil Engineers, at 8.—*Further Discussion:* Reinforced Concrete Wharves and Warehouses at Lower Pootung, Shanghai: S. H. Ellis.—The Direct Experimental Determination of the Stresses in the Steel and in the Concrete of Reinforced-Concrete Columns: W. C. Popplewell.—Composite Columns of Concrete and Steel: W. H. Burr.

WEDNESDAY, January 17.

Royal Meteorological Society, at 7.45.—Annual General Meeting.—Presidential Address, Some Meteorological Observations: Dr. H. N. Dickson.

Entomological Society, at 8.—Annual General Meeting.

Royal Microscopical Society, at 8.—President's Annual Address: On Certain Blood Parasites.

Institute of Metals, at 10.30.—A Metallographic Hygroscope: Prof. Carl A. F. Benedicks.—A Study of the Properties of Alloys at High Temperatures: Dr. G. D. Bengough.—Further Experiments on the Inversion at 470° C. in Copper-Zinc Alloys: Prof. H. C. H. Carpenter.—The Influence of Oxygen on Copper containing Arsenic or Antimony: R. H. Greaves.—The Influence of Tin and Lead on the Micro-structure of Brass: F. Johnson.—A Contribution to the History of Corrosion; The Corrosion of Condenser Tubes by Contact with Electro-Negative Substances: Arnold Philip.—The Nomenclature of Alloys: Dr. W. Rosenhain. The Behaviour of Certain Alloys when Heated in Vacuo: Prof. T. Turner.

THURSDAY, January 18.

Royal Society, at 4.30.—*Probable Papers:* The Physiological Effects of Low Atmospheric Pressures, as observed on Pike's Peak, Colorado (Preliminary Communication): Dr. J. S. Haldane, F.R.S., C. G. Douglas, Prof. Y. Henderson, and Prof. E. C. Schneider.—A paper on the effect of altitude on the dissociation curve of the blood: J. Barcroft, F.R.S.—Note on *Astrosclera willeyana* Lister: R. Kirkpatrick.—*Herpetomonas pediculi*, nov. spec., parasitic in the Alimentary Tract of *Pediculus vestimenti*, the Human Body Louse: Dr. H. B. Fantham.—Antelope Infected with *Trypanosoma gambiense*: Capt. A. D. Fraser and Dr. H. L. Duke.

Royal Institution, at 3.—The New Astronomy: Prof. A. W. Bickerton.

Linnean Society, at 8.—Some Features of the Marine Flora of St. Andrews: Dr. A. Anstruther Lawson.

Royal Society of Arts, at 4.30.—The Old District Records of Bengal: Rev. W. K. Firminger.

Institution of Electrical Engineers, at 8.—*Adjourned Discussion:* Residence Tariffs: A. H. Seabrook.

Institution of Mining and Metallurgy, at 8.—A Submerged Flexible-joint Main: F. Reed.—Unwatering Tresavean Mine: C. Brackenbury.—Notes on the Operation of Two Winding Engines: H. M. Morgans.—Stoping at the Calamon Mine: C. P. Corbett Sullivan.

FRIDAY, January 19.

Institution of Mechanical Engineers, at 8.—The Evolution and Present Development of the Turbine Pump: Dr. Edward Hopkinson and Alan E. L. Chorlton.

Royal Institution, at 9.—Heat Problems: Sir J. Dewar, F.R.S.

Institution of Civil Engineers, at 8.—The Turbo-blower and Turbo-compressor: G. Ingram.

SATURDAY, January 20

Royal Institution, at 3.—The Banyoro—A Pastoral People of Uganda; (1) The Milk Customs: Rev. J. Roscoe.

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